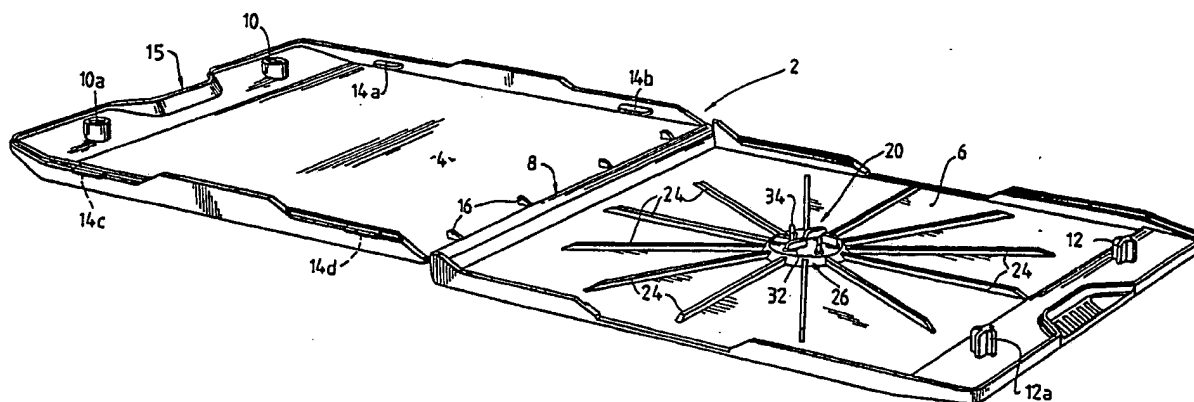




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(54) Title: LASER DISC PACKAGE



(57) Abstract

A one-piece integrally formed container or package (2) for an audio laser disc (40) or similar is provided in which the body portion (2) is divided into a base portion (6) and a cover portion (4) by a substantially centrally located hinge means (8). The hinge means (8) allows the cover portion (4) to move between two extreme positions; the first extreme position being a substantially closed position in which the cover portion (4) is in intimate contact with the base portion (6) and the second extreme position being a substantially open flat position in which the cover portion (4) is substantially planar with the base portion (6). Additionally, the base portion (6) is provided with an integrally formed laser disc retention means (20) having a plurality or multiplicity of fingers (34) resiliently deformable which cooperate with the alignment aperture (42) of the disc (40) to securely retain the disc safely in the package in use.

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LASER DISC PACKAGE

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The present invention relates to a container
5 generally, and more particularly to a one-piece container
or package moulded from a plastics material. Even more
particularly the present invention relates to a novel
one-piece container or package for a laser audio disc or
compact disc and to an improved method of making the
10 package as a one-piece moulding.

Although the present invention will be
described with particular reference to a one-piece
container moulded from plastics material for containing
and packaging a laser audio disc or a compact disc it is
15 to be noted that the scope of the present invention is

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not so limited and may extend in scope to include other modifications for packaging compact discs or other similar products such as video discs or the like and to other methods of manufacturing the package.

5 Currently, compact discs or audio discs are packaged in a standard package which is common to the industry. This industry standard package has a number of inherent disadvantages or short coming which will be described below in detail. One major disadvantage or
10 drawback is that the standard package is made up from a number of individual components which must be assembled together after their manufacture. At present three major plastic components are required to be manufactured individually and then assembled together. Presently, the
15 standard industry package used consists of a base portion having an integrally moulded first hinge portion and a cover portion having an integrally moulded second hinge portion where the first hinge portion and second hinge portion are complementary to each other so that when the
20 cover and base portion are assembled together the two hinge portions combine together to form the hinge so that the cover may freely pivot between a fully open position and a fully closed position with respect to the base portion. The third major component is a disc retention
25 means which is separately manufactured and attached to the base portion during assembly of the package. The disc retention device is received on a complementary shaped boss of the base portion of the existing package. Since the three major components of the package must be
30 manufactured separately and then assembled together the overall multi-component package is both costly and time consuming to produce.

In addition to having to separately make the individual components, each of the base portion and the
35 cover portion of the existing package cannot be made in a single manufacturing step because of their somewhat

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complex shape require a number of different manufacturing steps to make a single base or cover. Thus a number of separate manufacturing steps are required to make each of the base portion and the cover portion. The additional
5 manufacturing steps to manufacture the cover and the base are both costly and time-consuming which adds to the overall cost of the package.

Other problems encountered with the current package is that access to the disc to remove it from the
10 package is cumbersome and requires some prior knowledge and dexterity on the part of the user. The design of the fittings of the components of the standard package lends itself to the fittings being prone to easy breakage, especially the parts forming the combined hinge joining
15 the two halves together and the closure pins for retaining the package in a closed condition. Additionally, the material from which the package is made is easily damaged and additionally because it is clear and easily scratched, the package may be damaged
20 inadvertently which detracts from its appearance and appeal, particularly in a retail situation.

Thus, it is one aim of the present invention to provide a one-piece laser disc package which is less costly and time consuming to manufacture and which
25 provides a number of advantages over the existing package.

It is a further aim of the present invention to provide a laser disc package which has additional features not found in existing laser disc packages.

30 A further aim of the present invention is to provide a package that can be made in one piece in a single manufacturing process.

According to the present invention there is provided a one-piece container or package comprising a
35 one-piece body having a substantially centrally located hinge means dividing the body into a cover portion and a

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base portion, said hinge means allowing the cover portion to move between a first position which is a substantially closed configuration and a second position which is a substantially open configuration allowing insertion or
5 removal of the contents of the container, said base portion being provided with an integrally formed contents retention means for securely holding the contents of the package in use, said contents retention means comprising a multiplicity or plurality of spaced apart retaining
10 fingers for cooperatively engaging with the contents of the package to securely locate the contents in the container in use.

Typically, the package is a laser audio disc or compact disc package.

15 Typically, the substantially centrally located hinge means is located intermediate the cover portion which extends to one side of the hinge means and the base portion which extends to the other side of the hinge means so that the cover may be folded upon the base to
20 close the package.

Typically, the package is provided with a positive action locking means or closure means. More typically, the closure means comprises a tube and post arrangement. Preferably the post means is of a cruciform
25 shape and the tube is hollow wherein the cruciform post is received in the tube.

Typically, the contents retention means is a compact disc retention means having a plurality of outwardly extending fingers which cooperatively interact
30 with the centrally located alignment aperture of a compact disc. More typically the fingers are resilient so that their respective free ends are resiliently inwardly deformable to adopt a position abutting against the circumference of the alignment aperture.

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The present invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a perspective view of one form of the laser disc package of the present invention in a substantially open configuration;

Figure 2 is a perspective view in detail of the disc retention means of Figure 1;

Figure 3 is a detailed plan view of the disc retaining means of Figure 2 showing a fragmentary portion of a disc in situ;

Figure 4 is a cross-sectional view along the line 4 to 4 of Figure 3; and

Figure 5 is a perspective view of an alternative form of the disc retention means of the present invention.

In the drawings is shown one form of the laser disc package of the present invention generally denoted as 2, comprising a body of substantially two halves; one half of the body being a cover 4, while the other half of the body is a base 6. The package 2 is moulded as a single-piece moulding from any suitable material such as for example a clear thermoplastic resin or similar. A preferred material is ^{a coloured} clear polypropylene. Preferably, the clear polymeric material is mar-proof or scratch resistant in order to preserve the attractive appearance of the package. However it is to be noted that the package may be made from any suitable or convenient plastics material. A centrally located hinge 8 is provided intermediate the cover 4 and base 6. The centrally located hinge 8 extends the full width of the adjacent cover 4 and base 6 to allow a full range of movement of the cover with respect to the base such as from being fully opened as shown in Figure 1 to being fully closed (not shown). Hinge 8 may be of a conventionally moulded type which may be in the "at rest

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position" when the base and cover are in intimate contact with each other to define the closed configuration or may be the "at rest position" when the cover is spaced apart from the base to a greater or lesser amount so as to

5 adopt any configuration between being just open when the cover is resting upon the base to being fully open as shown in Figure 1. The full width integrally moulded hinge 8 is employed for simplicity of construction and to eliminate the need for separate cover and base to be

10 assembled together. Hinge 8 in one embodiment offers lateral stability and alignment features while enabling the package to assume an open-flat configuration naturally. In one form the hinge 8 is so designed and manufactured such that it retains a natural spring

15 tendency after the package is closed so as to provide assistance in the opening sequence of the package such that as soon as the cover is released from the base, the hinge provides a bias to slightly "pop" open the cover. Additionally, it is to be noted that hinge 8 is not

20 deformed permanently by repeated operation through opening and closing cycles.

Cover 4 is provided with a pair of spaced apart hollow tubes 10, 10a located towards the free-end edge or distal edge of the cover forming the closure end. Base 6

25 is provided with a pair of spaced apart generally cruciform shaped posts 12, 12a located towards the free end edge or distal edge of cover 6 which is the closure end. In use, when the cover is brought into intimate contact with the base and pressure applied to the "

30 cruciform posts 12, 12a are received in tubes 10, 10a respectively to form the package is in the closed configuration. Since the external dimensions of cross arms of the cruciform posts 12, 12a are ever so slightly larger than the internal diameter of the tubes, when the

35 posts are received in the corresponding tubes respectively the posts are slightly compressibly deformed

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so that the posts are held in the tubes by friction to retain the cover and base in the closed configuration. In addition to providing a positive securing means for the package the combination of the posts and tubes
5 provide means for three plane alignment. In one embodiment the force exerted by the tube/post combination forming the closure means is sufficient to overcome the natural spring of the integral hinge means 8 and ensures that the package will remain closed during handling and
10 transportation of the package. The free or distal ends of the cruciform posts are slightly bevelled or tapered to facilitate alignment of the posts for being received in the tubes. It is to be noted that any suitable closure means may be employed in the package of the
15 present invention.

A pair of tabs 14a, 14b are located along one longitudinal side of the cover 4 and a pair of identical tabs 14c, 14d are located along the other longitudinal side of cover 4. The four tabs are provided to retain in
20 place any insert or sleeve of printed matter that may be added to the package in preparation for sale. Such inserts may take the form of an information sheet or similar. Stops 16 are located in a row adjacent hinge 8 to retain the information sheet in place once it has been
25 inserted between the tabs 14. A recess or cut away 15 is formed in the distal edge of the cover 4 as one part of the opening means for the package.

Base 6 is provided with an integrally moulded laser disc retention means 20 which comprises a number of
30 integrally formed and interrelated components. One part of the disc retention means 20 comprises a plurality of radially arranged strengthening ribs 24 which extend outwardly from a centrally located upstanding boss 26. Boss 26 provides support for the laser disc 40 in use
35 when it is stored in the package (which will be described in more detail later). Ribs 24 are provided to

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strengthen base 6 to strengthen the package so as to further protect the laser disc from damage during storage. Boss 26 which is moulded as a circular indentation in the wall of base 6 extends inboardly into the interior of the package and at the same time forms a corresponding circular depression on the outside surface of base 6. A second set of strengthening ribs (not shown) are located in the circular depression outboardly of the wall of base 6 to provide additional rigidity for the package. Boss 26 comprises a plateau surface 28 and a sloping wall 30. Plateau 28 is substantially planar to the plane of base 6 and provides support for the compact disc when it is in the package as can be seen in Figure 4. Ribs 24 are integrally formed into the sloping wall 30 at more or less regularly spaced locations around boss 26. A plurality or multiplicity of substantially rounded elongate or ovaloid apertures 32 are located at more or less regularly spaced apart locations around the outer portion of plateau 28. Apertures 32 may be of any desirable or convenient shape and are particularly provided with curved ends. Although six such apertures are illustrated it is to be noted that any number of apertures may be located at more or less regularly spaced locations in plateau 28. Resilient fingers 34 are integrally formed on plateau 28 close to apertures 32 and are provided to retain the laser disc in place. Each of the fingers 34 is associated with each of the apertures 32. The outwardly extending fingers 34 which are more or less regularly spaced around the plateau also extend axially upwards from the boss 26 to extend into the container. The fingers 34 are mounted so as to extend outwardly from the plateau at an angle between being radially arranged and being tangentially arranged. Generally the fingers collectively extend from the plateau in a manner similar to the vanes of an impeller or turbine. The inboard ends 36 of the fingers are each

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securely attached to the plateau by being integrally formed with the plateau whereas the free ends 38 of the fingers extend outwardly to at least partially overlie the apertures 32 and are thus free to move. Thus, the

5 outboard or distal ends 38 of each finger are resiliently deformable from their natural at rest position. Since the fingers are secured at their respective inboard ends 36 and are free at their respective outboard ends 38 the fingers 34 are free to pivot or otherwise deflect, deform

10 or the like at their respective free ends in a plane parallel to the base 6 in response to a deforming force. The respective free ends 36 of the fingers are each formed into a complex curve in which the axial upper edge in use is provided with a guide radius 44 which is curved

15 so as to allow the compact disc to slip easily over the ends of the fingers and to align the disc with respect to the disc retention means. Additionally the free ends of the fingers are bevelled to provide clearance for the finger in the alignment aperture 44 of the compact disc

20 40 when the disc is being tilted over the fingers. Typically, the angle of bevel is about the same as the angle at which the fingers extend from the boss 26. With particular reference to Figure 3, in use, the free ends 38 deflect slightly under pressure from the alignment

25 aperture 42 of the laser disc 40 when the disc is fitted over them and are resiliently biased to return to their natural position. In being urged to return to their natural at rest position the respective free ends 36 of the fingers 34 bear against the circumference of the

30 alignment aperture 42 of the compact disc and thus hold the compact disc 40 securely in place. Pressure exerted vertically by the disc 40 over the fingers 34, causes lateral displacement of the ends 36 of the fingers 34 at their peripheries radially inwardly along an arc inboard

35 of the disc alignment aperture 42. After the disc 40 has passed over the guide radii 44 the vertical walls of the

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finger tips, while trying to assume their natural at rest position when unloaded apply a light secure clamping pressure to the inner edge of the disc alignment aperture 42.

5 In use, removal of the disc is effected simply by exerting a light upward pressure to the edge of the disc, causing it to slide up and off the ends of the fingers.

In one embodiment there are six outwardly
10 extending fingers and of course six underlaying apertures. The six fingers are arranged around the circumference in three pairs at regularly spaced apart intervals.

The two fingers consisting a single pair of
15 fingers are both parallel to each other but extend in opposite directions. Although this arrangement of fingers is illustrated and described it is to be noted that other arrangements are possible and fall within the scope of the present invention.

20 With particular reference to Figure 4, in one embodiment the height that the plateau is raised above the wall of base 6, is such that when the laser disc is placed over the disc retention means the underneath surface of the disc is protected from damage by being
25 slightly spaced about the inboard surface of ribs 24. Which is to say that the height of the sloping wall 28 is greater than the thickness of ribs 24 so that when the compact disc is placed on the plateau its underneath surface is slightly spaced from the inboard edge of the
30 ribs 24.

Typically the number of radially outwardly extending fingers is from four to eight, preferably six. However, it is to be noted that any number of fingers may be present. The complete disc retention means may be
35 manufactured in a single manufacturing step. Cover 4, adjacent to the closure edge and running transversely the

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full width of the package is angled to facilitate the manner in which the package is loaded into storage systems, racks and the like such as between adjacent articles and displays. The outer edges of the package in 5 this region are also angled inboard to assist in the manner.

A cut-out feature located at or adjacent the closure edge facilitates finger access for opening the package while a ribbed surface on the base 6 provide a 10 non-slip area, together with an optional indicator, such as for example, an arrow moulded into the base indicates the area of access. Cut-outs provided in the two opposing walls of the base combined with angled ribs in the base, improve access for positioning and retrieving 15 the disc.

Other modifications can be made to the laser disc package of the present invention including the following.

The major portions of the cover and base outer 20 walls are recessed to provide protection for the edges of a printed matter sleeve and protective plastic film.

An alternative embodiment of the disc retention means 20 of the present invention is shown in Figure 5. Like reference numerals for like features will be used in 25 the description of this embodiment as those used in the description of the previous embodiment.

Base 6 is provided with a plurality of ribs 24. Ribs 24 provide strength and rigidity for the package. Some of ribs 24 are provided with support shoulders 48 30 whereas others may not be so provided. The compact disc 40 rests on the support shoulders 48 when securely retained in place. Ribs 24 are integrally formed with the upstanding wall 52 of slotted cylinder 50 having a number of slots located around the wall of the cylinder 35 at regularly spaced apart locations. A retaining ring 56 is integrally formed around the top inboard edge of the

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cylinder walls. As cylinder 50 is integrally formed with base 6, the base of the wall is fixed whereas the free end or top inboard edge is free to deflect or deform resiliently. In use compact disc 40 is placed over the top of the cylinder 50 with the alignment aperture 42 spanning the top edge of the cylinder walls. Since the circumference of the top edge of the cylinder walls is slightly less than the diameter of the alignment aperture the disc contacts the wall intermediate the upper edge and the retaining ring 56. Slight pressure is applied vertically downwards to the disc which forces the walls of the cylinder to be slightly compressed inwardly so that the alignment aperture clears the retaining ring to allow the disc to be located on the shoulders 48 of ribs 24 where provided. To release the disc 40, the peripheral edges of the disc are grasped by the fingers and the disc raised vertically which causes the alignment aperture to slightly compress the slotted walls radially inwards thus clearing the perimeter of the alignment aperture and allowing the disc to be lifted free.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A one-piece integrally formed container or package characterised in that it comprises a one-piece body having a substantially centrally disposed hinge means separating the body into a cover portion and a base portion, said hinge portion allowing movement of the cover portion relative to the base portion between a first position in which the base portion and cover portion are in intimate contact with each other to define a closed configuration and a second position in which the cover portion is spaced apart from the base portion to define an open configuration, said base portion being provided with an integrally formed contents retention means having a plurality of fingers wherein the fingers cooperatively engage with the contents of the package to securely retain the contents in place in the package.

2. A one-piece integrally formed package for a laser disc or similar characterised in that it comprises a generally rectangular one-piece body having a substantially centrally located transverse hinge means separating the body into a base portion and a cover portion, said cover portion being substantially planar and said base portion being substantially planar and being provided with a laser disc retaining means comprising a plurality of radially extending strengthening ribs arranged in a spoke-like manner around a centrally located upstanding boss, said boss being provided with a plurality of radially outwardly extending and axially upwardly extending fingers for cooperatively interacting with the alignment aperture of the laser disc to retain the laser disc securely in place in the package during use of the package.

3. A one-piece package according to any preceding claim characterised in that the disc retention means includes an integrally formed upstanding boss having a plateau and a slopping side wall, said plateau being

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substantially in a place parallel to the plane of the base portion, said plateau defining a support surface for the disc when stored in the package.

4. A one-piece package according to any preceding claim characterised in that the plateau is provided with a plurality of outwardly extending fingers which extend substantially outwardly at an angle in one plane and extend axially upwardly from the plateau in another plane.

5. A one-piece package according to any preceding claim characterised in that the plateau is provided with a plurality of apertures located at more or less regularly spaced apart locations around the outer peripheral portion of the plateau.

6. A one-piece package according to any preceding claim characterised in that the number of apertures corresponds to the number of fingers and said fingers are arranged on said plateau so that the respective inboard ends of the fingers are integrally formed with the plateau and the respective outboard ends of the finger overhang the apertures at least in part.

7. A one-piece package according to any preceding claim characterised in that the fingers are substantially resilient along their lengthwise extending axis so that the free ends are resiliently deflectable or deformable arcuately inwardly to accommodate being received in the alignment aperture of the laser disc.

8. A one-piece package according to any preceding claim in which the cover portion is provided with a first part of a closure means and the base portion is provided with a second part of the closure means, said first and second parts of the closure means being complementary to each other so as to co-operately interact to maintain the package in a substantially closed configuration.

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9. A one-piece package according to any preceding claim in which the first part of the closure means is a hollow tubular member and the second part is a generally cruciform shaped post member, said post member being ever so slightly larger in dimensions than the internal diameter of the tube member, so that the post member is slightly resiliently compressible when received in the tube member in use thereby retaining the package in a closed condition.

10. A one-piece package according to any preceding claim, characterised in that the hinge means is a substantially transverse full width hinge.

11. A one-piece package according to any preceding claim characterised in that the hinge means is at rest naturally when the package is substantially flat in which the cover portion and base portion are substantially coplanar.

12. A one-piece package according to any preceding claim, characterized in that the hinge means may adopt a natural at rest position at any position between the two extreme positions.

13. A one-piece package according to any preceding claim characterised in that the cover portion is provided with a first portion of an opening means in the form of a recess and the base portion is provided with a second portion of an opening means in the form of a ribbed portion, said ribbed portion and said recess being complementary and co-operately interacting to facilitate opening of the package.

14. A one-piece package according to any preceding claim characterised in that the contents retention means is an integrally formed cylinder extending from the base portion inboard into the package and having a slotted wall arrangement dividing the wall into segments, said

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segments being resiliently deformable at their respective distal ends for cooperatively interacting with the alignment aperture of a laser disc.

15. A one-piece package substantially as hereinbefore described with reference to the accompanying drawings.

AMENDED CLAIMS

[received by the International Bureau on 9 August 1988 (09.08.88)
original claim 1 amended ; claim 7 replaced by new claims 7 and 8 ; claims 8 - 15
unchanged but renumbered as claims 9 - 16 ; new claims 17 and 18 added (4 pages)]

1. A one-piece integrally formed container or package characterised in that it comprises a one-piece body having a substantially centrally disposed hinge means separating the body into a cover portion and a base portion, said hinge portion allowing movement of the cover portion relative to the base portion between a first position in which the base portion and cover portion are in intimate contact with each other to define a closed configuration and a second position in which the cover portion is spaced apart from the base portion to define an open configuration, said base portion being provided with an integrally formed contents retention means having a plurality of fingers wherein the fingers yieldingly and frictionally cooperatively engage with the contents of the package to securely retain the contents in place in the package, said fingers being substantially resilient along their lengthwise extending axis so that the respective free ends are resiliently deflectable or deformable arcuately inwardly in the common plane containing the plurality of fingers to accommodate the fingers engaging the contents of the package.
2. A one-piece integrally formed package for a laser disc or similar characterised in that it comprises a generally rectangular one-piece body having a substantially centrally located transverse hinge means separating the body into a base portion and a cover portion, said cover portion being substantially planar and said base portion being substantially planar and being provided with a laser disc retaining means comprising a plurality of radially extending strengthening ribs arranged in a spoke-like manner around a centrally located upstanding boss, said boss being provided with a plurality of radially outwardly extending and axially upwardly extending fingers for cooperatively

interacting with the alignment aperture of the laser disc to retain the laser disc securely in place in the package during use of the package.

3. A one-piece package according to any preceding claim characterised in that the disc retention means includes an integrally formed upstanding boss having a plateau and a slopping side wall, said plateau being substantially in a plane parallel to the plane of the base portion, said plateau defining a support surface for the disc when stored in the package.

4. A one-piece package according to any preceding claim characterised in that the plateau is provided with a plurality of outwardly extending fingers which extend substantially outwardly at an angle in one plane and extend axially upwardly from the plateau in another plane.

5. A one-piece package according to any preceding claim characterised in that the plateau is provided with a plurality of apertures located at more or less regularly spaced apart locations around the outer peripheral portion of the plateau.

6. A one-piece package according to any preceding claim characterised in that the number of apertures corresponds to the number of fingers and said fingers are arranged on said plateau so that the respective inboard ends of the fingers are integrally formed with the plateau and the respective outboard ends of the finger overhang the apertures at least in part.

7. A one-piece package according to any preceding claim characterised in that the fingers are each integrally formed with the boss to extend upwardly and outwardly from the plateau so that the respective free ends of the fingers are resiliently deflectable or deformable arcuately inwardly in the plane parallel to the plane of the plateau to accommodate being received in the alignment aperture of the laser disc, each of said

fingers having a distal end which is formed into a complex curve to facilitate being received in and engaging against the alignment aperture of the laser disc.

8. A one-piece package according to any preceding claims characterized in that the distal free end of each of the respective fingers has a curved upper edge and is bevelled in the plane parallel to the plateau.

9. A one-piece package according to any preceding claim in which the cover portion is provided with a first part of a closure means and the base portion is provided with a second part of the closure means, said first and second parts of the closure means being complementary to each other so as to co-operately interact to maintain the package in a substantially closed configuration.

10. A one-piece package according to any preceding claim in which the first part of the closure means is a hollow tubular member and the second part is a generally cruciform shaped post member, said post member being ever so slightly larger in dimensions than the internal diameter of the tube member, so that the post member is slightly resiliently compressible when received in the tube member in use thereby retaining the package in a closed condition.

11. A one-piece package according to any preceding claim, characterised in that the hinge means is a substantially transverse full width hinge.

12. A one-piece package according to any preceding claim characterised in that the hinge means is at rest naturally when the package is substantially flat in which the cover portion and base portion are substantially coplanar.

13. A one-piece package according to any preceding claim, characterized in that the hinge means may adopt a natural at rest position at any position between the two extreme positions.

14. A one-piece package according to any preceding claim characterised in that the cover portion is provided with a first portion of an opening means in the form of a recess and the base portion is provided with a second portion of an opening means in the form of a ribbed portion, said ribbed portion and said recess being complementary and co-operately interacting to facilitate opening of the package.

15. A one-piece package according to any preceding claim characterised in that the contents retention means is an integrally formed cylinder extending from the base portion inboard into the package and having a slotted wall arrangement dividing the wall into segments, said segments being resiliently deformable at their respective distal ends for cooperatively interacting with the alignment aperture of a laser disc.

16. A one-piece package substantially as hereinbefore described with reference to the accompanying drawings.

17. A one-piece package according to any one of the preceding claims characterized in that the package is moulded in a single process step.

18. A method of making a one-piece package characterized in that the method comprises a single moulding step in which a complete package may be formed.

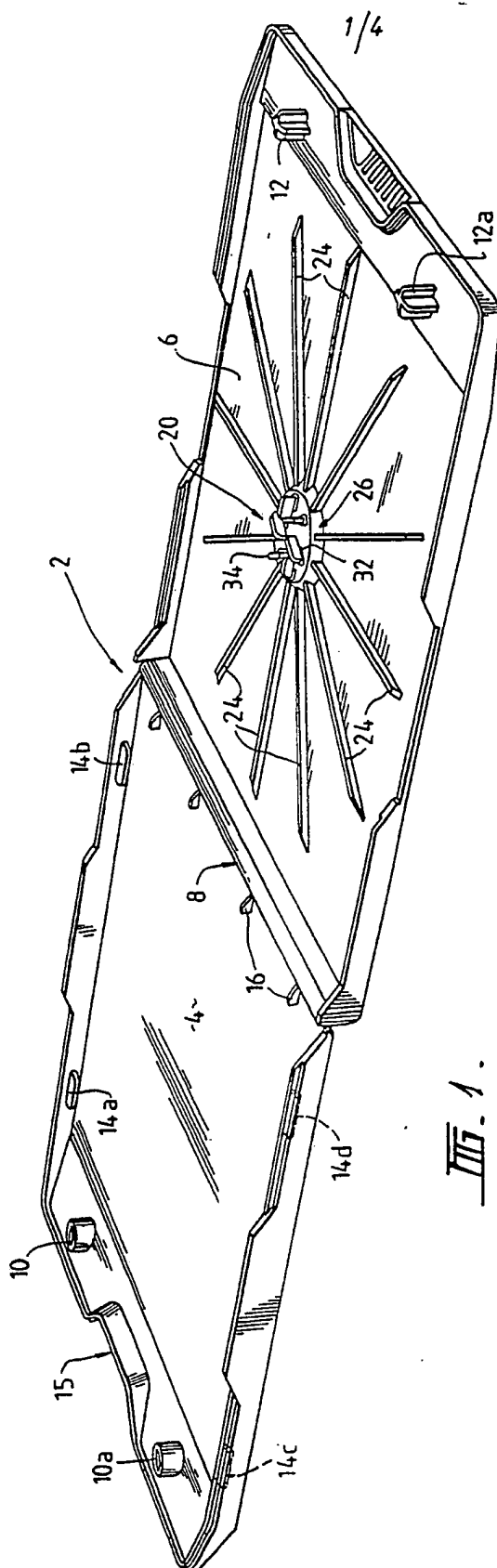
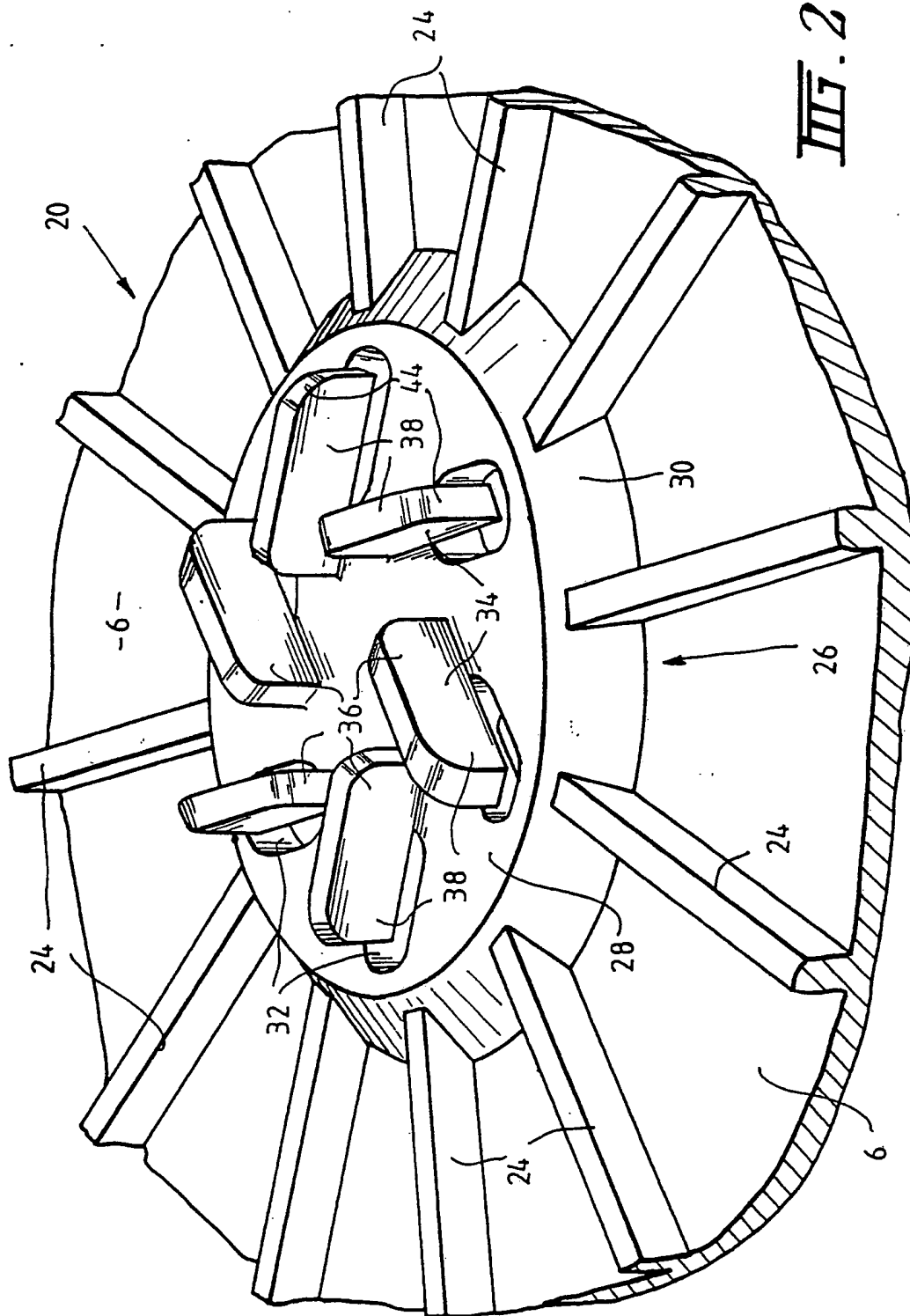


Fig. 1.

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FIG. 2.



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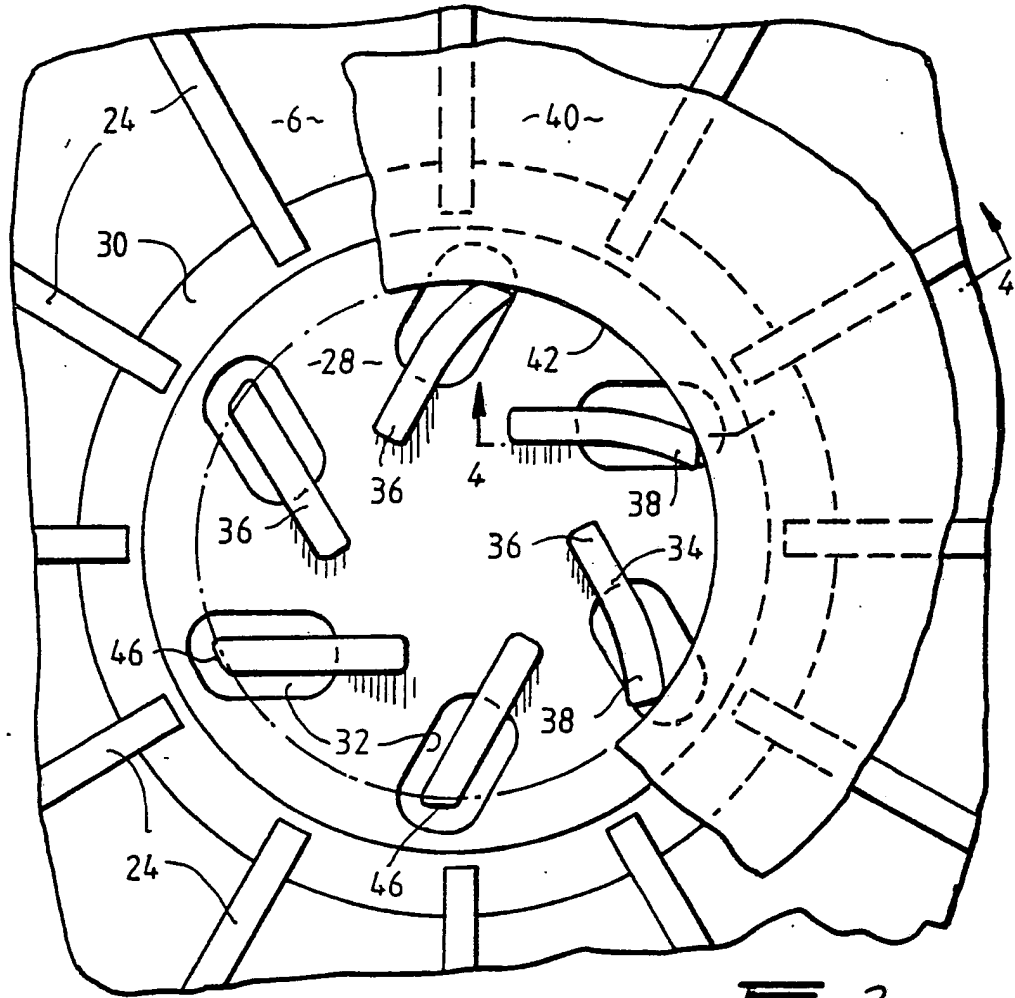


FIG. 3.

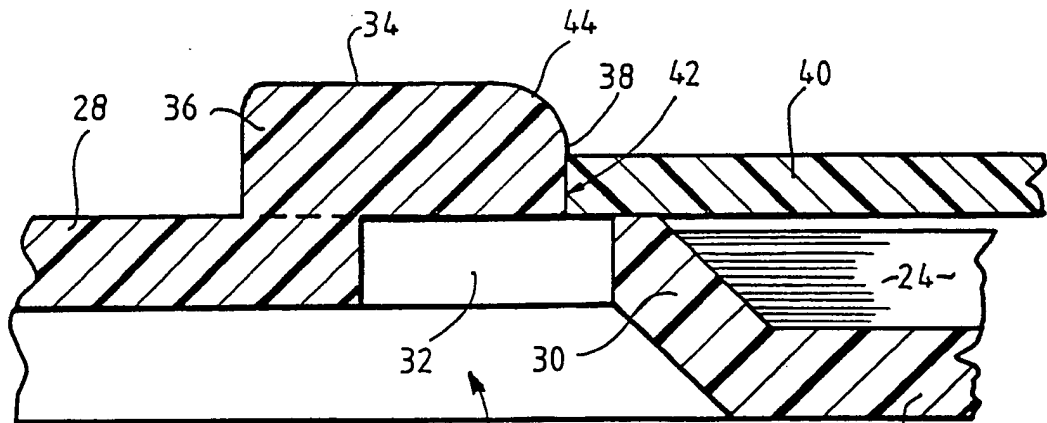
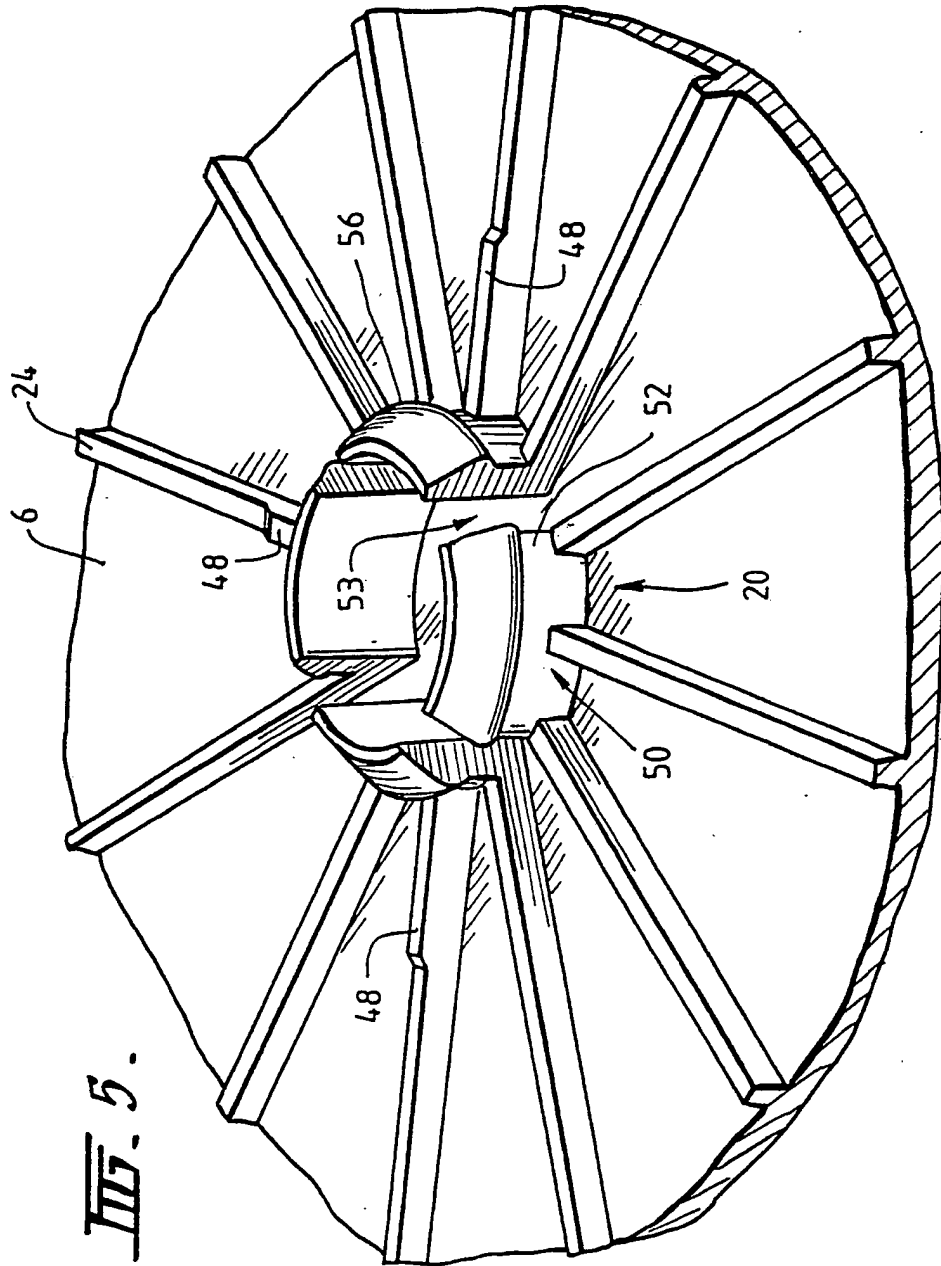


FIG. 4.

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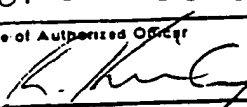
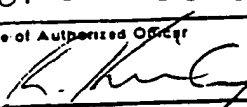
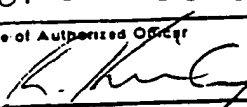
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SUBSTITUTE SHEET

INTERNATIONAL SEARCH REPORT

International Application No PCT/AU 88/00066

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) According to International Patent Classification (IPC) or to both National Classification and IPC Int. Cl. ⁴ B65D 85/57, G11B 23/033, 33/04																										
II. FIELDS SEARCHED Minimum Documentation Searched ⁷ Classification System IPC B65D 85/57, 85/02, G11B 23/033, 33/04 US Cl. 206-310 Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸ AU : IPC B65D 85/57																										
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹ <table border="1"> <thead> <tr> <th>Category¹⁰</th> <th>Citation of Document,¹¹ with indication, where appropriate, of the relevant passages¹²</th> <th>Relevant to Claim No.¹³</th> </tr> </thead> <tbody> <tr> <td>X,P</td> <td>GB,A, 2187442 (HAVANT ASSOCIATES LTD) 9 September 1987 (09.09.87)</td> <td>(1,3,4,7,9-13)</td> </tr> <tr> <td>Y,P</td> <td></td> <td>(2,8)</td> </tr> <tr> <td>X,P</td> <td>EP,A, 212377 (SIEMENS AG) 4 March 1987 (04.03.87)</td> <td>(1,14)-</td> </tr> <tr> <td>Y</td> <td>US,A, 3825112 (SCHUMAKER AND HAY) 23 July 1974 (23.07.74)</td> <td>(2,8)</td> </tr> <tr> <td>Y</td> <td>US,A, 4176744 (BORZAK) 4 December 1979 (04.12.79)</td> <td>(2,8)</td> </tr> <tr> <td>A</td> <td>US,A, 4084690 (PULSE) 18 April 1978 (18.04.78)</td> <td>(1,8,10-12)</td> </tr> <tr> <td>A</td> <td>US,A, 3949872 (PAUDRAS) 13 April 1976 (13.04.76)</td> <td>(1,8,10-12)</td> </tr> </tbody> </table>			Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³	X,P	GB,A, 2187442 (HAVANT ASSOCIATES LTD) 9 September 1987 (09.09.87)	(1,3,4,7,9-13)	Y,P		(2,8)	X,P	EP,A, 212377 (SIEMENS AG) 4 March 1987 (04.03.87)	(1,14)-	Y	US,A, 3825112 (SCHUMAKER AND HAY) 23 July 1974 (23.07.74)	(2,8)	Y	US,A, 4176744 (BORZAK) 4 December 1979 (04.12.79)	(2,8)	A	US,A, 4084690 (PULSE) 18 April 1978 (18.04.78)	(1,8,10-12)	A	US,A, 3949872 (PAUDRAS) 13 April 1976 (13.04.76)	(1,8,10-12)
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IV. CERTIFICATION <table border="1"> <tr> <td> Date of the Actual Completion of the International Search 31 May 1988 (31.05.88) </td> <td> Date of Mailing of this International Search Report 10 JUNE 1988 (10.06.88) </td> </tr> <tr> <td> International Searching Authority Australian Patent Office </td> <td> Signature of Authorized Officer  R. KIRBY </td> </tr> </table>			Date of the Actual Completion of the International Search 31 May 1988 (31.05.88)	Date of Mailing of this International Search Report 10 JUNE 1988 (10.06.88)	International Searching Authority Australian Patent Office	Signature of Authorized Officer  R. KIRBY																				
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ANNEX TO THE INTERNATIONAL SEARCH REPORT ON
INTERNATIONAL APPLICATION NO. PCT/AU 88/00066

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document
Cited in Search
Report

Patent Family Members

US 4084690	DE 2735850	FR 2361285	GB 1575521
	IT 1086300	JP 53021691	GB 1577324

US 3949872	AU 71321/74	DE 2431637	FR 2238211
	IT 1016330	JP 50039906	NL 7409816

END OF ANNEX